**SKH Li Fook Hing Secondary School**  
**SARS Special Holiday Exercise**  
**S6 Physics (Current electricity)**  

1. Two cylindrical metal rods, \(X\) and \(Y\), are made from the same material and have the same mass. The length of \(X\) is three times that of \(Y\).
   (a) Find the ratio of the resistance of \(X\) to that of \(Y\).
   (b) Currents of 1A and 2A pass through \(X\) and \(Y\) respectively. Find the ratio of the power dissipation in \(X\) to that in \(Y\).

**Question modified from 1997-IIA-25(AL)/15(AS)**

2. A 15 battery is connected in series with 3\(k\Omega\) and 1\(k\Omega\) resistors. A voltmeter reads 3V when connected across QR in the circuit. The internal resistance of the battery is negligible.
   (a) Find the potential difference PQ.
   (b) Find the current passing through the 3\(k\Omega\) resistor?
   (c) Find the current passing through the 1\(k\Omega\) resistor?
   (d) Find the current passing through the voltmeter.
   (e) What is the resistance of the voltmeter?

**Question modified from 1980-I-21**

3. A power station supplies electrical power to a user. The power generated by the station is 1200 kW and is transmitted at 132000V. The resistance of the lines connecting the power station to the user is 550\(\Omega\).
   (a) Find the current supplied by the power station.
   (b) Find the power loss in the transmission.
   (c) Find the power available to the user.

**Question modified from 1984-I-26**

4. In the following circuit, no current flows through the galvanometer G. The internal resistance of the cell is negligible.
   (a) What is current in the 50\(\Omega\) resistor?
   (b) What is the potential difference across the 40\(\Omega\) resistor?
   (c) What is the value of \(R\)?

**Question modified from 1983-I-23**

5. In the following circuit each cell has negligible internal resistance. The voltmeter has a resistance of 5 k\(\Omega\).
   (a) Find the current supplied by the 6V cell.
   (b) Find the current supplied by the 2V cell.
   (c) Find the reading on the voltmeter.

**Question modified from 1998-IIA-21(AL)**